

WHAT IS CLAIMED IS:

1 1. A method of manufacturing a chamber formation plate of a liquid
2 ejection head, including a first region formed with at least recess portions to be
3 pressure generating chambers communicated with nozzles from which liquid
4 droplets are ejected by pressure generated in the pressure generating
5 chambers, the method comprising step of:

6 providing a metal plate and a forging die;

7 providing a reference part on the metal plate, the reference part
8 defining a relative position between the first region and the forging die;

9 providing at least one deformation absorber at a second region of the
10 metal plate where is between the first region and the reference part; and

11 performing at least one plastic working by the forging die, with respect
12 to the first region to form at least the recess portions, while plastic deformation
13 of the metal plate caused by the plastic working is absorbed by the
14 deformation absorber.

1 2. The manufacturing method as set forth in claim 1, wherein the step of
2 providing the deformation absorber includes a step of forming a through hole in
3 the metal plate.

1 3. The manufacturing method as set forth in claim 2, wherein the step of
2 providing the deformation absorber includes a step of determining a shape of
3 through hole in accordance with a condition of the plastic deformation to be
4 caused by the plastic working.

1 4. The manufacturing method as set forth in claim 2, wherein the
2 through hole is so formed as to extend in a direction substantially
3 perpendicular to a direction in which the plastic deformation transmits.

1 5. The manufacturing method as set forth in claim 1, wherein the step of
2 providing the deformation absorber is performed before the step of performing
3 the plastic working.

1 6. The manufacturing method as set forth in claim 1, wherein the step of
2 providing the reference part and the step of providing the deformation absorber
3 are performed simultaneously.

1 7. The manufacturing method as set forth in claim 1, wherein the metal
2 plate is provided as a continuous strip to be eventually cut into a plurality of
3 chamber forming plates.

1 8. The manufacturing method as set forth in claim 1, wherein the metal
2 plate is provided as a pre-cut plate to eventually be the chamber formation
3 plate.

1 9. The manufacturing method as set forth in claim 1, wherein the step of
2 providing the reference part includes a step of forming a through hole to which
3 a reference pin provided in the forging die is to be inserted.

1 10. The manufacturing method as set forth in claim 1, wherein the recess
2 portions are arranged at a fixed interval.

1 11. The manufacturing method as set forth in claim 10, wherein the
2 interval is 0.3mm or less.

1 12. A mother metal plate, to be a chamber formation plate of a liquid
2 ejection head which is formed with at least recess portions to be pressure
3 generating chambers communicated with nozzles from which liquid droplets
4 are ejected by pressure generated in the pressure generating chamber, the
5 mother plate comprising:

6 a first region, to be subjected to a plastic working performed by a
7 forging die to form at least the recess portions;

8 a reference part, which defines a relative position between the first
9 region and the forging die; and

10 at least one deformation absorber provided at a second region where
11 is between the first region and the reference part, the deformation absorber
12 operable to absorb plastic deformation of the mother metal plate caused by the
13 plastic working.

1 13. The mother metal plate as set forth in claim 12, wherein the
2 deformation absorber is a through hole.

1 14. The mother metal plate as set forth in claim 13, wherein the through
2 hole is so elongated as to transverse the second region.

1 15. The mother metal plate as set forth in claim 14, wherein an arcuate
2 part is formed in an end portion of the elongated through hole.

1 16. The mother metal plate as set forth in claim 13, wherein:
2 the mother metal plate is formed with through holes for defining a
3 connecting portion which is to be cut to separate the first region from the
4 mother plate as the chamber formation plate; and
5 a width of the through hole is larger than a width of the connecting
6 portion.

1 17. The mother metal plate as set forth in claim 12, wherein the metal
2 mother plate is comprised of nickel.

1 18. The mother metal plate as set forth in claim 12, wherein the reference
2 part is a through hole to which a reference pin provided in the forging die is to
3 be inserted.